

REMARKS

Claims 1-26 are pending in the Application.

Claims 1-26 stand rejected.

Claims 1-3, 10-12, 14-19 and 26 stand rejected under 35 U.S.C. § 103 as being unpatentable over *Song, et al.* (U.S. Patent No. 5,696,385). In response, Applicants respectfully traverse this rejection.

Claims 1, 4, 14, 21, 23, 24, 25 and 26 all recite either that the substrate is treated to modify a morphology of the substrate, or change a chemical composition of the substrate, or roughen the surface of the substrate. In response, all the Examiner has stated is that *Song* performs the treating step when the metal layer 330 is patterned on substrate 310. The Examiner then states that since the structure is the same in *Song* as that recited in the claims, then the result is inherently the same. Applicants respectfully traverse this assertion by the Examiner. Though *Song* may perform an etching step to pattern metal layer 330 on substrate 310, nothing within *Song* teaches or suggests that such an etching step either (1) modifies a morphology, (2) changes the chemical composition of the surface of the substrate, or (3) roughens the surface of the substrate. It is entirely possible that the processes performed within *Song* do not modify any morphology, chemical composition, or surface of the substrate, while the processes performed within the present invention do. Since the Examiner has failed to specifically cite to any teaching or suggestion in *Song* that *Song's* processes modify a morphology, chemical composition, or surface of the substrate, the Examiner has relied upon a statement that it would be inherent that the processes in *Song* affect the substrate 310 in such a manner. Applicants respectfully traverse such an inherency argument by the Examiner. The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. See MPEP § 2112; citing *In re Rijckaert*, 9 F.3d 1531, 1534, 28 U.S.P.Q.2d 1955, 1957 (Fed. Cir. 1993). In relying upon the theory of inherency, the

Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art. MPEP § 2112; citing *Ex parte Levy*, 17 U.S.P.Q.2d, 1461, 1464 (BD. PAT. APP. & INTER. 1990) (emphasis in original).

Therefore, because of Applicants' traversal of the Examiner's assertion of what is inherently taught or suggested within *Song*, under MPEP § 2112, the Examiner is required to support the Examiner's assertions with objective evidence. Otherwise, the Examiner's *prima facie* case of obviousness in rejecting these claims fails, since *Song* does not teach the treating steps as specifically recited within these claims.

Claims 1, 14, 17, and 26 all recite that the carbon film is grown on the substrate. *Song* does not in any way teach or suggest that the emitter material 370 is grown on the substrate 310 as shown in Figures 10-15, or any of the other figures. In all embodiments taught or suggested within *Song*, a ballast material, such as material 365, is first deposited on the substrate before the emitter material 370 is deposited on the ballast material 365. The ballast material is not an emitter material, and is definitely not a carbon film, but is instead a resistive material such as doped amorphous silicon. Column 2, lines 26-27. Therefore, all of the steps referring to growing the carbon film on the substrate are not taught or suggested within *Song*.

As a result of the foregoing, Applicants respectfully assert that one skilled in the art at the time the invention was made would not have been able to recreate the claims noted above having the treating and growing steps. Furthermore, to establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. MPEP § 2143.03; citing *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974). Quite clearly, there are two major steps within all of these claims that are not taught or suggested within *Song*, and therefore, the *prima facie* case of obviousness fails.

With respect to claim 9, the Examiner has not addressed this limitation in any way. For this reason alone, the Examiner has failed to prove a *prima facie* case of obviousness in rejecting

claim 9. Claim 9 specifically recites the step of performing sonication on the substrate. Applicants have reviewed *Song* and *Yoshioka*, and neither of these references, either individually or in combination, teaches or suggests such a sonication step. All that these references teach or suggest is the etching away of certain layers. However, the sonication step performed in the present invention does not perform such an etching process, and therefore one skilled in the art at the time the invention was made would not have equated etching steps with sonication steps.

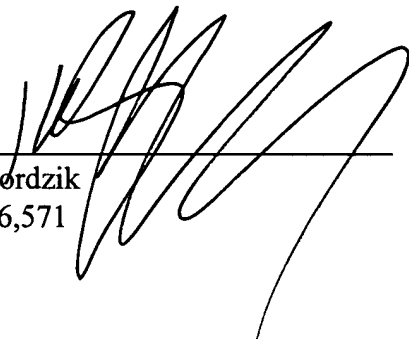
Claims 12 and 18 specifically recite that the carbon film is also deposited on the metal layer. First, the Examiner has not specifically addressed these claim limitations, and therefore the Examiner has failed to prove a *prima facie* case of obviousness in rejecting claims 12 and 18. Second, *Song* does not teach or suggest depositing emitter material 370 on metal layer 330. Quite clearly, all of the teachings and drawings within *Song* show that a ballast material 365 lies between the emitter material 370 and the metal layer 330. Therefore, one skilled in the art at the time the invention was made would not have been able to recreate either of claims 12 or 18 in view of *Song*.

As a result of the foregoing, Applicants respectfully assert that all of claims 1-26 are patentable over the cited prior art.

12179-P064US

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